



South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

July 10, 2000  
NOC-AE-00000868  
File No.: G09.16  
10CFR50.55a

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555-0001

South Texas Project  
Units 1 and 2  
Docket Nos. STN 50-498, STN 50-499  
Request for Relief from ASME Boiler and Pressure Vessel Code Section XI  
Requirements for Containment Tendon Examination and Inspection  
(Relief Request RR-ENG-IWL-01)

In accordance with the provisions of 10CFR50.55a(a)(3)(ii), the South Texas Project requests relief from the requirements of IWL-2500 of ASME Section XI for examination of unbonded post-tensioning systems of Unit 1 and Unit 2. IWL-2521(c) specifies examination of exempted tendons to the extent that the end anchorages of the exempt tendons are accessible either during operation or during an outage. However, the South Texas Project requests Nuclear Regulatory Commission approval to exempt specific tendons from examination because compliance poses hardship and possible personal injury or unusual difficulty without a compensating increase in the level of quality and safety.

The attached relief request provides a discussion of the basis and justification for the relief request as well as an implementation schedule.

The South Texas Project requests Nuclear Regulatory Commission review and approval of this relief request by September 1, 2000.

If there are any questions, please contact either Mr. M. S. Lashley at (361) 972-7523 or me at (361) 972-7902.

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Requirements for Containment Tendon Examination and Inspection  
(Relief Request RR-ENG-IWL-01)

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**SOUTH TEXAS PROJECT  
UNITS 1 & 2  
REQUEST FOR RELIEF FROM ASME BOILER AND PRESSURE  
VESSEL CODE SECTION XI REQUIREMENTS FOR  
CONTAINMENT TENDON EXAMINATION AND INSPECTION  
(RELIEF REQUEST RR-ENG-IWL-01)**

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Reference Code: ASME Boiler and Pressure Vessel Code Section XI, Subsection IWL, 1992 Edition through 1992 Addenda

A. Components for Which Exemption is Requested:

(a) Identification: Containment tendons (unbonded post-tensioning system)

3H062	3H080	3H098	3H116
3H065	3H083	3H101	3H119
3H068	3H086	3H104	3H122
3H071	3H089	3H107	3H125
3H074	3H092	3H110	3H128
3H077	3H095	3H113	3H131

(b) Function: Help maintain containment structural integrity in the event of a LOCA or steam line break accident.

(c) Class: ASME Code Class CC

B. Code Requirement from Which Relief is Requested:

IWL-2521, "Tendon Selection," states the criteria for determining which tendons are to be examined. IWL-2521.1, "Exemptions," allows for use of substitute tendons when tendons are not accessible for examination because of safety or radiological hazards, or because of structural obstructions. IWL-2521.1(c) states:

Each exempted tendon shall be examined in accordance with IWL-2524 and IWL-2525 to the extent that the end anchorages of the exempt tendon are accessible either during operation or at an outage.

IWL-2524 addresses visual examination of tendon anchorage areas. IWL-2525 provides criteria for taking samples for examination of the corrosion protection medium and free water.

The South Texas Project requests relief from applying the requirements of IWL-2521.1(c) to the Class CC unbonded post-tensioning systems listed in section A above for IWL-2524 and IWL-2525 examinations of exempted tendons during operation or outage.

C. Basis for Relief from Code Requirements:

The tendons listed in section A are looped horizontally around the containment structure with each end anchored to a buttress above the Isolation Valve Cubicle. The Isolation Valve Cubicle contains the steam generator safety and power-operated relief valves, which are provided to relieve steam pressure from the steam generators and Main Steam System. A steam overpressure transient during plant operation could cause one or more of these valves to open without warning. A large steam release from these valves could result in injury or fatality to personnel inspecting these tendons. Therefore, compliance with the requirements of Section XI for the subject tendons during plant operation poses a hardship and possible personal injury or unusual difficulty without a compensating increase in the level of quality and safety.

Inservice inspection of containment tendons is normally performed when the Unit is operating. Examination of the subject tendons during a refueling outage is not desirable because of other activities that are in progress in the immediate and surrounding area. These activities limit access to the tendons such that tendon examination activities could become a critical path item for concluding a refueling outage. Therefore, compliance with the requirements of Section XI for the subject tendons during an outage poses a hardship and possible personal injury or unusual difficulty without a compensating increase in the level of quality and safety.

D. Alternate Examination:

IWL-2521 specifies the requirements for selecting the tendons to be examined. The tendons listed in section A will remain in the sample population. However, should one of the listed tendons be selected for examination under this code, a substitute tendon, located either above or below the selected tendon, would be examined in its place. This is consistent with the criteria of IWL-2521.1(a) and (b) for exempting tendons from examination. However, IWL-2524 and IWL-2525 will not be applied to the exempt tendons. Examination of tendon anchorage areas, and examination of corrosion protection medium and free water, would only be applied to a neighboring tendon.

If degradation is detected in a substitute, an engineering evaluation would be performed as part of the Corrective Action process to determine generic implications.

E. Justification for Granting Relief:

**Containment Design**

The Reactor Containment Building is constructed with three vertical buttresses located 120° apart. The horizontal tendons extend around the circumference of the containment building, with both ends of a given tendon anchored at the same buttress. Each successive horizontal tendon is progressively offset 120° from the one beneath it. Each tendon is basically the same length, has virtually identical end anchorage hardware, and

is exposed to the same environmental conditions as its neighbor. Consequently, use of a substitute tendon for an examination is expected to provide representative examination results.

### **Previous Test Results**

Surveillance testing of containment building tendons is performed one, three, and five years following the initial Structural Integrity Test and every five years thereafter. The initial structural integrity tests for Units 1 and 2 were completed March 26, 1987, and September 29, 1988, respectively. The following inspections have been performed:

<u>Unit 1</u>	<u>Unit 2</u>
1 <sup>st</sup> Year completed 6/88	1 <sup>st</sup> Year completed 12/89
3 <sup>rd</sup> Year completed 3/90	3 <sup>rd</sup> Year completed 3/92
5 <sup>th</sup> Year completed 5/92	5 <sup>th</sup> Year completed 10/93
10 <sup>th</sup> Year completed 7/98	10 <sup>th</sup> Year completed 9/98

The tendons listed in section A were not included in these surveillances except for the first inspection of Unit 1. The grease caps, including those of the excluded tendons, have been examined to identify grease leakage or deformation. No relevant indications were found during the inspections.

### **Additional Examination Requirements**

Containment tendons are inspected under 10CFR50.55a(b)(2)(viii)(A) as follows:

Grease caps that are accessible must be visually examined to detect grease leakage or grease cap deformations. Grease caps must be removed for this examination when there is evidence of grease cap deformation that indicates deterioration of anchorage hardware.

As stated in 10CFR50.55a(b)(2)(viii)(E):

For Class CC applications, the licensee shall evaluate the acceptability of inaccessible areas when conditions exist in accessible areas that could indicate the presence of or result in degradation to such inaccessible areas. For each inaccessible area identified, the licensee shall provide the following in the ISI Summary Report required by IWA-6000:

- (1) A description of the type and estimated extent of degradation, and the conditions that led to the degradation;
- (2) An evaluation of each area, and the result of the evaluation; and
- (3) A description of necessary corrective actions.

## **Conclusion**

The alternate examination will ensure the containment structural integrity is not jeopardized. Therefore, because compliance with the requirements of Section XI for the subject tendons poses a hardship and possible personal injury or unusual difficulty without a compensating increase in the level of quality and safety, the South Texas Project requests relief from IWL-2521.1(c).

### **F. Implementation Schedule:**

The South Texas Project requests Nuclear Regulatory Commission approval by September 1, 2000, to implement this relief request beginning in the first IWL inspection interval.